This is a full and timely response to the outstanding non-final Office Action mailed May 30, 2006. Upon entry of the amendments in this response, claims 1 – 29 and 31 – 64 remain pending. In particular, Applicants amend claim 63 and 64. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

I.   Claim Objections

The Office Action indicates that claim 64 is objected to because this claim has two steps labeled "(c)". In an effort to comply with the Office Action request, Applicants amend claim 64 by changing "(c)" to "(e)". Applicants submit that this amendment overcomes the objection and that claim 64 is in condition for allowance.

II.   Rejections Under 35 U.S.C. §103

In order for a claim to be properly rejected under 35 U.S.C. §103, the teachings of the cited art reference must suggest all features of the claimed invention to one of ordinary skill in the art. *See, e.g., In re Dow Chemical*, 837 F.2d 469, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988); *In re Keller*, 642 F.2d 413, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981). Further, "[t]he PTO has the burden under section 103 to establish a prima facie case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references." *In re Fine, Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

A. Claim 1 is Allowable Over _Pandya_ in view of _Aras_

The Office Action indicates that claim 1 stands rejected under 35 U.S.C. 103(a) as being

allegedly unpatentable over U.S. Patent Number 6,671,724 ("_Pandya_") in view of U.S. Patent

Number 5,884,037 ("_Aras_"). Applicants respectfully traverse this rejection for at least the reason

that _Pandya_ in view of _Aras_ fails to disclose, teach, or suggest all of the elements of claim 1.

More specifically, claim 1 recites:

> A method of providing network access across a shared
> communications medium in a downstream direction towards competing
> users, comprising the steps of:
> (a) monitoring network access usage by at least one user during a
> time interval;
> (b) _determining whether the at least one user has previously been_
> _assigned a forecast function_;
> (c) in response to determining that the at least one user has not
> previously been assigned a forecast function, _assigning a forecast_
> _function to the at least one user_;
> (d) forecasting downstream network access usage by the at least
> one user during a future time interval based on said monitored network
> access usage by the at least one user and said forecast function; and
> (e) based on said forecasting, allocating network access to each
> user on a per user basis for a future time interval. _(emphasis added)_

Applicants respectfully submit that the cited art fails to disclose, teach, or suggest all of

the elements of claim 1. More specifically, neither _Pandya_ nor _Aras_, separately or in

combination, appear to disclose a "method of providing network access... comprising the steps

of... _determining whether the at least one user has previously been assigned a forecast_

function [and] in response to determining that the at least one user has not previously been

assigned a forecast function, _assigning a forecast function to the at least one user_" as recited in

claim 1. As indicated by the Office Action, "Pandya et al. does not disclose determining whether

the at least one user has been previously assigned a forecast function and, if not, assigning a

forecast function to the at least one user" (OA p. 4, line 1). However, the Office Action asserts that *Aras* discloses "using an ARIMA model to predict bandwidth allocations and for reference to if no previous trend data is known, meaning no previous prediction function has been assigned, choosing the terms of the prediction function using trial and error thereby, assigning a prediction function" (OA p. 4, line 6).

Applicants respectfully disagree with this analysis. *Aras* does not appear to disclose any condition that is met prior to utilization of an ARIMA. *Aras* appears to disclose a "general class of models used to forecast a time series entirely from its own history" (col. 4, line 33). *Aras*, however, does not disclose "***determining whether the at least one user has previously been assigned a forecast function***" as recited in claim 1. Applicants respectfully submit that the passage "[i]f no particular trends are known, choosing the number of terms can be performed by trial and error" (*Aras* col. 5, line 3) does <u>not</u> equate to "***determining whether the at least one user has previously been assigned a forecast function***," as asserted by the Office Action, for at least the reason that there is no suggestion in *Aras* or elsewhere that trend data is indicative of "***determining whether the at least one user has previously been assigned a forecast function***." Additionally, neither *Aras* nor *Pandya* suggest "in response to determining that the at least one user has not previously been assigned a forecast function, ***assigning a forecast function to the at least one user***" as recited in claim 1. For at least these reasons, claim 1 is allowable over the cited art.

B.   <u>Claim 39 is Allowable Over *Pandya* in view of *Aras*</u>

The Office Action indicates that claim 39 stands rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over U.S. Patent Number 6,671,724 ("*Pandya*") in view of U.S. Patent

Number 5,884,037 ("*Aras*"). Applicants respectfully traverse this rejection for at least the reason

that *Pandya* in view of *Aras* fails to disclose, teach, or suggest all of the elements of claim 39.

More specifically, claim 39 recites:

> A method of providing network access across a shared communications medium between competing users, comprising the steps of:
> (a) monitoring network access usage by at least one user during a time interval;
> (b) *determining whether the at least one user has been assigned a forecast function*;
> (c) in response to determining that the at least one user has been assigned a forecast function, *determining whether to check for a seasonal cycle related to the user*;
> (d) in response to determining to check for a seasonal cycle, executing a seasonal identifier algorithm;
> (e) forecasting upstream and downstream network access usage by the at least one user during a future time interval based on said monitored network access usage by the at least one user; and
> (f) based on said forecasted network access usage, allocating network access to the at least one user for the future time interval.

Applicants respectfully submit that the cited art fails to disclose, teach, or suggest all of

the elements of claim 39. More specifically, neither *Pandya* nor *Aras*, separately or in

combination, appear to disclose a "method of providing network access... comprising the steps

of... *determining whether the at least one user has been assigned a forecast function* [and] in

response to determining that the at least one user has been assigned a forecast function,

determining whether to check for a seasonal cycle related to the user" as recited in claim 39.

As indicated by the Office Action, "Pandya et al. does not disclose determining whether the at

least one user has been assigned a forecast function, if so, determining whether to check for a

seasonal cycle related to the user and execution a seasonal identifier algorithm" (OA p. 5, third

line from end). However, the Office Action asserts that *Aras* discloses "determining that a

previous ARIMA model has been used and for reference to using pervious trends to periodically repeat the calculation of ARIMA model function to adjust the terms used in the function based on the latest seasonal information" (OA p. 4, line 6).

Applicants respectfully disagree with this analysis. *Aras* does not appear to disclose any condition that is met prior to utilization of an ARIMA. *Aras* appears to disclose a "general class of models used to forecast a time series entirely from its own history" (col. 4, line 33). *Aras*, however, does not disclose "***determining whether the at least one user has been assigned a forecast function***" as recited in claim 39. Applicants respectfully submit that the passage "[i]f no particular trends are known, choosing the number of terms can be performed by trial and error" (*Aras* col. 5, line 3) does <u>not</u> equate to "***determining whether the at least one user has been assigned a forecast function***," as asserted by the Office Action, for at least the reason that there is no suggestion in *Aras* or elsewhere that trend data is indicative ***determining whether the at least one user has been assigned a forecast function***." Additionally, neither *Aras* nor *Pandya* suggest "in response to determining that the at least one user has been assigned a forecast function, ***determining whether to check for a seasonal cycle related to the user***" as recited in claim 39. For at least these reasons, claim 39 is allowable over the cited art.

C.   **Claims 2 – 4, 6, 8 – 11, 13, 15 – 25, 31, 33 – 37, 40, 42 – 54, 57 – 59, and 61 – 62 are Allowable Over *Pandya* in view of *Aras***

The Office Action indicates that claims 2 – 4, 6, 8 – 11, 13, 15 – 25, 28 – 29, 31, 33 – 37, 40, 42 – 54, 57 – 59, and 61 – 62 stand rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over *Pandya* in view of *Aras*. Applicants respectfully traverse this rejection for at least the reason that *Pandya* in view of *Aras* fails to disclose, teach, or suggest all of the elements

of claims 2 – 4, 6, 8 – 11, 13, 15 – 25, 28 – 29, 31, 33 – 37, 40, 42 – 54, 57 – 59, and 61 – 62.

More specifically, dependent claims 2 – 4, 6, 8 – 11, 13, 15 – 25, 31, and 33 – 37 are believed to

be allowable for at least the reason that these claims depend from allowable independent claim 1.

Dependent claims 40, 42 – 54, 57 – 59, and 61 – 62 are believed to be allowable for at least the

reason that they depend from allowable independent claim 39. *In re Fine, Minnesota Mining and*

Mfg.Co. v. Chemque, Inc., 303 F.3d 1294, 1299 (Fed. Cir. 2002).

      D.   **Claims 5 and 7 are Allowable Over *Pandya* in view of *Aras* and further in**
              view of *Barnes*

The Office Action indicates that claims 5 and 7 stand rejected under 35 U.S.C. 103(a) as

being allegedly unpatentable over *Pandya* in view of *Aras* and further in view of U.S. Patent

Number 6,529,486 ("*Barnes*"). Applicants respectfully traverse this rejection for at least the

reason that *Pandya* in view of *Aras* and further in view of *Barnes* fails to disclose, teach, or

suggest all of the elements of claims 5 and 7. More specifically, dependent claims 5 and 7 are

believed to be allowable for at least the reason that these claims depend from allowable

independent claim 1. *In re Fine, Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d

1294, 1299 (Fed. Cir. 2002).

      E.   **Claims 12, 38, and 60 are Allowable Over *Pandya* in view of *Aras* and further**
              in view of *Hanko*

The Office Action indicates that claims 12, 38, and 60 stand rejected under 35 U.S.C.

103(a) as being allegedly unpatentable over *Pandya* in view of *Aras* and further in view of U.S.

Patent Number 6,438,141 ("*Hanko*"). Applicants respectfully traverse this rejection for at least

the reason that *Pandya* in view of *Aras* and further in view of *Hanko* fails to disclose, teach, or

suggest all of the elements of claims 12, 38, and 60. More specifically, dependent claims 12 and 38 are believed to be allowable for at least the reason that these claims depend from allowable independent claim 1. Dependent claim 60 is believed to be allowable for at least the reason that this claim depends from allowable independent claim 39. *In re Fine, Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

F. Claim 63 is Allowable Over *Pandya* in view of *Aras* and further in view of *Farah*

The Office Action indicates that claim 63 stands rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over *Pandya* in view of *Aras* and further in view of U.S. Patent Number 6,567,418 ("*Farah*"). Applicants respectfully traverse this rejection for at least the reason that *Pandya* in view of *Aras* and further in view of *Farah* fails to disclose, teach, or suggest all of the elements of claim 63. More specifically, claim 63 recites:

> A method of providing network access across a shared communications medium of a Cable Network between competing users, comprising the steps of:
> (a) monitoring network access usage by at least one user for a time interval;
> (b) *determining whether the at least one user has previously been assigned a forecast function*;
> (c) in response to determining that the at least one user has not been assigned a forecast function, *assigning a forecast function to the at least one user*;
> (d) based on said monitoring and said assigned forecast function, forecasting the number of logical data units (LDUs) of at least one user that will be transmitted over a future time interval; and
> (d) based on said forecasting, allocating network access available to the at least one user for the future time interval. *(emphasis added)*

Applicants respectfully submit that the cited art fails to disclose, teach, or suggest all of the elements of claim 63. More specifically, neither *Pandya* nor *Aras*, separately or in

combination, appear to disclose a "method of providing network access... comprising the steps of... *determining whether the at least one user has previously been assigned a forecast function* [and] in response to determining that the at least one user has not been assigned a forecast function, *assigning a forecast function to the at least one user*" as recited in claim 63. As indicated by the Office Action, "Pandya et al. does not disclose determining whether the at least one user has been previously assigned a forecast function and, if not, assigning a forecast function to the at least one user" (OA p. 4, line 1). However, the Office Action asserts that *Aras* discloses "using an ARIMA model to predict bandwidth allocations and for reference to if no previous trend data is known, meaning no previous prediction function has been assigned, choosing the terms of the prediction function using trial and error thereby, assigning a prediction function" (OA p. 4, line 6).

Applicants respectfully disagree with this analysis. *Aras* does not appear to disclose any condition that is met prior to utilization of an ARIMA. *Aras* appears to disclose a "general class of models used to forecast a time series entirely from its own history" (col. 4, line 33). *Aras*, however, does not disclose "*determining whether the at least one user has previously been assigned a forecast function*" as recited in claim 63. Applicants respectfully submit that the passage "[i]f no particular trends are known, choosing the number of terms can be performed by trial and error" (*Aras* col. 5, line 3) does <u>not</u> equate to "*determining whether the at least one user has previously been assigned a forecast function,*" as asserted by the Office Action, for at least the reason that there is no suggestion in *Aras* or elsewhere that trend data is indicative of "*determining whether the at least one user has previously been assigned a forecast function.*" Additionally, neither *Aras* nor *Pandya* suggest "in response to determining that the at least one user has not been assigned a forecast function, *assigning a forecast function to the at least one*

user" as recited in claim 63. Additionally, *Farah* does not overcome the deficiencies of *Aras* and

Pandya. For at least these reasons, claim 63 is allowable over the cited art.

   G.   **Claim 64 is Allowable Over *Pandya* in view of *Aras* and further in view of *Farah***

   The Office Action indicates that claim 64 stands rejected under 35 U.S.C. 103(a) as being

allegedly unpatentable over *Pandya* in view of *Aras* and further in view of *Farah*. Applicants

respectfully traverse this rejection for at least the reason that *Pandya* in view of *Aras* and further

in view of *Farah* fails to disclose, teach, or suggest all of the elements of claim 64. More

specifically, claim 64 recites:

>   A method of providing network access across a shared
> communications medium of a Cable Network between competing users,
> comprising the steps of:
>   (a) monitoring network access usage requested by each user for a
> time interval;
>   (b) *determining whether the at least one user has previously been
> assigned a forecast function*;
>   (c) in response to determining that the at least one user has been
> previously been assigned a forecast function, *determining whether to
> check for a seasonal cycle related to the user*; and
>   (d) forecasting the number of logical data units (LDUs) that will be
> requested by each user over a future time interval based on said
> monitoring and said forecast function; and
>   (e) based on said forecasting, allocating network access available
> to each user for the future time interval. *(emphasis added)*

   Applicants respectfully submit that the cited art fails to disclose, teach, or suggest all of

the elements of claim 64. More specifically, neither *Pandya* nor *Aras*, separately or in

combination, appear to disclose a "method of providing network access... comprising the steps

of... *determining whether the at least one user has previously been assigned a forecast*

function [and] in response to determining that the at least one user has been previously been assigned a forecast function*, **determining whether to check for a seasonal cycle related to the user***" as recited in claim 64. As indicated by the Office Action, "Pandya et al. does not disclose determining whether the at least one user has been previously assigned a forecast function and, if not, assigning a forecast function to the at least one user" (OA p. 4, line 1). However, the Office Action asserts that *Aras* discloses "using an ARIMA model to predict bandwidth allocations and for reference to if no previous trend data is known, meaning no previous prediction function has been assigned, choosing the terms of the prediction function using trial and error thereby, assigning a prediction function" (OA p. 4, line 6).

Applicants respectfully disagree with this analysis. *Aras* does not appear to disclose any condition that is met prior to utilization of an ARIMA. *Aras* appears to disclose a "general class of models used to forecast a time series entirely from its own history" (col. 4, line 33). *Aras*, however, does not disclose "*determining whether the at least one user has previously been assigned a forecast function*" as recited in claim 64. Applicants respectfully submit that the passage "[i]f no particular trends are known, choosing the number of terms can be performed by trial and error" (*Aras* col. 5, line 3) does <u>not</u> equate to "*determining whether the at least one user has previously been assigned a forecast function*," as asserted by the Office Action, for at least the reason that there is no suggestion in *Aras* or elsewhere that trend data is indicative of "*determining whether the at least one user has previously been assigned a forecast function*." Additionally, neither *Aras* nor *Pandya* suggest "in response to determining that the at least one user has been previously been assigned a forecast function*, **determining whether to check for a seasonal cycle related to the user***" as recited in claim 64. Additionally, *Farah* does not

overcome the deficiencies of *Aras* and *Pandya*. For at least these reasons, claim 64 is allowable over the cited art.

H. Claim 14 is Allowable Over *Pandya* in view of *Aras* and further in view of *Farah*

The Office Action indicates that claim 14 stands rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over *Pandya* in view of *Aras* and further in view of *Farah*. Applicants respectfully traverse this rejection for at least the reason that *Pandya* in view of *Aras* and further in view of *Farah* fails to disclose, teach, or suggest all of the elements of claim 14. More specifically, dependent claim 14 is believed to be allowable for at least the reason that this claim depends from allowable independent claim 1. *In re Fine, Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

I. Claims 26 and 55 are Allowable Over *Pandya* in view of *Aras* and further in view of *Gemar*

The Office Action indicates that claims 26 and 55 stand rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over *Pandya* in view of *Aras* and further in view of U.S. Patent Number 6,483,839 ("*Gemar*"). Applicants respectfully traverse this rejection for at least the reason that *Pandya* in view of *Aras* and further in view of *Gemar* fails to disclose, teach, or suggest all of the elements of claims 26 and 55. More specifically, dependent claim 26 is believed to be allowable for at least the reason that this claim depends from allowable independent claim 1. Dependent claim 55 is believed to be allowable for at least the reason that this claim depends from allowable independent claim 39. *In re Fine, Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

J.   **Claims 27 and 56 are Allowable Over *Pandya* in view of *Aras* and further in view of *Hou***

The Office Action indicates that claims 27 and 56 stand rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over *Pandya* in view of *Aras* and further in view of U.S. Patent Number 6,324,184 ("*Hou*"). Applicants respectfully traverse this rejection for at least the reason that *Pandya* in view of *Aras* and further in view of *Hou* fails to disclose, teach, or suggest all of the elements of claims 27 and 56. More specifically, dependent claim 27 is believed to be allowable for at least the reason that this claim depends from allowable independent claim 1. Dependent claim 56 is believed to be allowable for at least the reason that this claim depends from allowable independent claim 39. *In re Fine, Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

K.   **Claims 32 and 41 are Allowable Over *Pandya* in view of *Aras* and further in view of *Huang***

The Office Action indicates that claims 32 and 41 stand rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over *Pandya* in view of *Aras* and further in view of U.S. Patent Number 6,151,852 ("*Huang*"). Applicants respectfully traverse this rejection for at least the reason that *Pandya* in view of *Aras* and further in view of *Huang* fails to disclose, teach, or suggest all of the elements of claims 32 and 41. More specifically, dependent claim 32 is believed to be allowable for at least the reason that this claim depends from allowable independent claim 1. Dependent claim 41 is believed to be allowable for at least the reason that this claim depends from allowable independent claim 39. *In re Fine, Minnesota Mining and Mfg.Co. v. Chemque, Inc.*, 303 F.3d 1294, 1299 (Fed. Cir. 2002).

CONCLUSION

In light of the foregoing amendments and for at least the reasons set forth above, Applicants respectfully submit that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that the now pending claims are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims are hereby courteously requested.

Any other statements in the Office Action that are not explicitly addressed herein are not intended to be admitted. In addition, any and all findings of inherency are traversed as not having been shown to be necessarily present. Further, any and all findings of well-known art and official notice, or statements interpreted similarly, should not be considered well known for at least the specific and particular reason that the Office Action does not include specific factual findings predicated on sound technical and scientific reasoning to support such conclusions.

If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

Respectfully submitted,

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